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|-----------------|-------------|----------------------|---------------------|------------------|
| 10/082,836      | 02/25/2002  | Masahiko Yukawa      | 09792909-5346       | 1041             |

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EXAMINER

DANIELS, ANTHONY J

ART UNIT

PAPER NUMBER

2622

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 03/22/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/082,836             | YUKAWA ET AL.       |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Anthony J. Daniels     | 2622                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 02 February 2007.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-17 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      Paper No(s)/Mail Date. \_\_\_\_ .  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
    Paper No(s)/Mail Date \_\_\_\_ .      5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_ .

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/3/2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 1/3/2007 have been fully considered but they are not persuasive.

As to applicant's arguments regarding the independent claims and the combination of the Yamada and Miyaguchi references, applicant asserts, "The Examiner has not shown where in any of the references there is a teaching or suggestion that would have motivated one of ordinary skill in the art to make the combinations asserted by the Examiner." The examiner respectfully disagrees with this contention and submits that in the office action on page 4, Lines 1-3, the examiner included the motivation for the combination and where in the Miyaguchi patent the motivation can be found.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al. (US # 5,130,804).

As to claim 11, Tamura et al. teaches a solid-state image pickup device (Figure 1) comprising: a circuit board (Figure 1, circuit board "B") having an opening (Figure 1, opening "35"); a sensor package (Figure 1, CCD "17") in which a chip of a solid-state image pickup element with a light-receiving surface is placed (Figure 1, light receiving surface "33"), the sensor package disposed at one surface of the circuit board so that the light-receiving surface of the chip of the solid-state image pickup element opposes the opening (Col. 3, Lines 65 and 66); and an optical unit disposed at the other surface of the circuit board so that incident light is focused on the light-receiving surface (Figure 1, lens unit "18"), wherein the circuit board is disposed between the sensor package and the optical unit (Figure 1; Col. 3, Lines 66-68; Col. 4, Lines 1 and 2, Lines 61-66).

As to claim 17, Tamura et al. teaches a solid-state image pickup device according to Claim 11, wherein the solid-state image pickup element is disposed on a surface of the sensor package (Figure 1 and Figure 4).

#### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,5,9,10,15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 2001/0050717) in view of Miyaguchi et al. (US # 5,508,740).

As to claim 1, Yamada et al. teaches a solid-state image pickup device (Figure 6) comprising: a circuit board (Figure 6, stepped wiring board "21") having an opening (Figure 6, *{The examiner interprets the opening as the gap extending vertically from sensor chip to the top of the stepped wiring board "21" of Figure 6. In the embodiment of Figure 11, Yamada teaches an image pickup opening extending vertically from the sensor chip past the top of the wiring board "5". The examiner cites this embodiment to show that the examiner's interpretation of the opening is reasonable within the context of the Yamada reference.}*); a chip of a solid-state image pickup element with a light-receiving surface placed at one surface of the circuit board so that the light-receiving surface of the chip of the solid-state image pickup element opposes the opening (Figure 6, image pickup semiconductor "4"); and an optical unit disposed at the other surface of the circuit board so that incident light is focused on the light-receiving surface (Figure 6, lens "2"), wherein the circuit board is disposed between the sensor and the optical unit (Figure

6, portions of stepped wiring board disposed between the image pickup semiconductor "4" and optical unit "20"). The claim differs from Yamada et al. in that it further requires a sensor package for receiving the chip and a seal adhered to the sensor package for sealing in the solid-state image pickup element, wherein the seal is placed within the opening of the circuit board.

In the same field of endeavor, Miyaguchi et al. teaches a sensor package containing an image sensor (Figure 1, Col. 3, Lines 61-63). The package also comprises an electronic cooling element for cooling the image sensor (Col. 4, Lines 15-18) and a seal adhered to the top of the package existing above the image sensor (Col. 4, Lines 4-8). In light of the teaching of Miyaguchi et al., it would have been obvious to one of ordinary skill in the art to house the chip of Yamada et al. in the package of Miyaguchi et al., because an artisan of ordinary skill would recognize that this would allow for photodetection with high S/N ratio (see Miyaguchi et al., Col. 1, Lines 35-37).

**Remarks about claim 1: The combination of Yamada et al. and Miyaguchi et al. places the seal of Miyaguchi et al. in the opening of the board of Yamada et al., because in Miyaguchi et al., the seal is placed above the image sensor. Furthermore, portions of the sensor package of Miyaguchi et al. (Figure 1, heat radiation member "270" and rest of Peltier element "220") are placed below the sensor. The wiring board of Yamada et al. is placed above the sensor and below the optical unit; thus, being between the package and optical unit when combined with Miyaguchi et al.**

As to claim 5, claim 5 is a method claim corresponding to the apparatus claim 1. Therefore, claim 5 is analyzed and rejected as previously discussed with respect to claim 1.

As to claim 9, Yamada et al. teaches a solid-state image pickup device according to Claim 1, wherein the seal is a glass seal (see Miyaguchi et al., Col. 4, Lines 4 and 5).

As to claim 10, Yamada et al., as modified by Miyaguchi et al., teaches a method of producing a solid-state image pickup device according to Claim 5, further comprising placing a seal adhered to the sensor package within the opening of the circuit board (see Miyaguchi et al., Figure 1, glass plate "250"; *{See Remarks about claim 1 above.}*).

As to claim 15, Yamada et al., as modified by Miyaguchi et al., teaches a solid-state image pickup device according to Claim 1, wherein the solid-state image pickup element is disposed on a surface of the sensor package (see Miyaguchi et al., Figure 1; Col. 4, Lines 12-23).

As to claim 16, claim 16 is a method claim corresponding to the apparatus claim 15. Therefore, claim 16 is analyzed and rejected as previously discussed with respect to claim 15.

5. Claims 2,3,6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 2001/0050717) in view of Miyaguchi et al. (US # 5,508,740) and further in view of Ackland et al. (Non-Patent Literature).

As to claim 2, Yamada et al., as modified by Miyaguchi et al., teaches a solid-state image pickup device of claim 1, including a sensor package (see Miyaguchi et al. Figure 1, package "210"). The claim differs from Yamada et al., as modified by Miyaguchi et al., in that it further requires that the sensor package include a signal processing circuit for processing a signal of the solid-state image pickup element.

In the same field of endeavor, Ackland et al. teaches a signal processing circuit on the same chip as the sensor package (see Figure 1: Conventional Multimedia camera). In light of the

teaching of Ackland et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensor package of Yamada et al., as modified by Miyaguchi et al., to include the signal processing circuitry of Ackland et al. Such a modification would allow for all of the processing to be done on a single chip; consequently, consuming less power and would allow for less space to be taken up on the circuit board.

As to claim 3, the limitations of claim 3 can be found in claim 2. Therefore, claim 3 is analyzed and rejected as previously discussed with respect to claim 2.

As to claims 6 and 7, claims 6 and 7 are method claims corresponding to the apparatus claims 2 and 3, respectively. Therefore, claims 6 and 7 are analyzed and rejected as previously discussed with respect to claims 2 and 3, respectively.

6. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 2001/0050717) in view of Miyaguchi et al. (US # 5,508,740) and further in view Tullis (US # 6,535,243).

As to claim 4, Yamada et al., as modified by Miyaguchi et al., teaches a solid-state image pickup device of claim 1. The claim differs from Yamada et al., as modified by Miyaguchi et al., in that it further requires that the circuit board be connected to an external device without a connector.

In the same field of endeavor, Tullis teaches a connection between a computer and a digital camera via a wireless link (see Abstract, Lines 1-4; Figure 1; Col. 3, Lines 62-67). In light of the teaching of Tullis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Yamada et al., as modified by Miyaguchi et al.,

to include a wireless link to an external device. Such a modification would save space on the circuit board due to the smaller size of antennas to connectors.

As to claim 8, claim 8 is a method claim corresponding to the apparatus claim 4.

Therefore, claim 8 is analyzed and rejected as previously discussed with respect to claim 4.

7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US # 5,130,804) in view of Ackland et al. (Non-Patent Literature).

As to claim 12, Tamura et al. teaches a solid-state image pickup device of claim 11. The claim differs from Tamura et al. in that it further requires that the sensor package include a signal processing circuit for processing a signal of the solid-state image pickup element.

In the same field of endeavor, Ackland et al. teaches a signal processing circuit on the same chip as the CCD sensor package (see Figure 1: Conventional Multimedia camera). In light of the teaching of Ackland et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the CCD sensor package of Tamura et al. to include the signal processing circuitry of Ackland et al. Such a modification would allow for all of the processing to be done on a single chip; consequently, consuming less power and would allow for less space to be taken up on the circuit board.

As to claim 13, the limitations of claim 13 can be found in claim 12. Therefore, claim 13 is analyzed and rejected as previously discussed with respect to claim 12.

8. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US # 5,130,804) in view of Tullis (US # 6,535,243).

As to claim 14, Tamura et al. teaches a solid-state image pickup device of claim 11. The claim differs from Tamura et al. in that it further requires that the circuit board be connected to an external device without a connector.

In the same field of endeavor, Tullis teaches a connection between a computer and a digital camera via a wireless link (see Abstract, Lines 1-4). In light of the teaching of Tullis, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Tamura et al. to include a wireless link to an external device. Such a modification would save space on the circuit board due to the smaller size of antennas to connectors.

### *Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Daniels whose telephone number is (571) 272-7362. The examiner can normally be reached on 8:00 A.M. - 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD  
3/13/2007



TUAN HO  
PRIMARY EXAMINER